Construction Estimating I (CNBT 1346)

Credit: 3 semester credit hours (2 hours lecture, 3 hours lab)

Prerequisite/Co-requisite: CNBT 1318

Course Description

Fundamentals of estimating materials and labor costs in construction.

Required Textbook and Materials

1. *Construction Estimating* by David Pratt, Delmar CENGAGE Learning
2. ISBN number is 13**:** 9781401809591
3. Flash Drive (1GB Minimum)
4. Notebook.

Course Objectives

Upon completion of this course, the student will be able to:

Explain estimating procedures; estimate materials from blueprints; and calculate labor units and costs.

1. Explain and use Construction Estimating procedures to properly estimate the material costs for a project. (SCANS C5.2, C6.4, C7.3, C9.3, C10.1, C14.5, C20.3, F1.3, F2.6, F4.3, F7.5, F9.4, F11.2, F12.3)
2. Use Construction Estimating procedures and determine the Labor costs for a project. (SCANS C5.2, C6.4, C7.3, C9.3, C10.1, C14.5, C20.3, F1.3, F2.6, F4.3, F7.5, F9.4, F11.2, F12.3)
3. Identify and define the relationship between cost accounting and construction management used in the field today. (SCANS C5.2, C6.4, C7.3, C9.3, C10.1, C14.5, C20.3, F1.3, F2.6, F4.3, F7.5, F9.4, F11.2, F12.3)

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor **S**ecretary's **C**ommission on **A**chieving **N**ecessary **S**kills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools.* In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

CNBT 1346
Course Syllabi

Course Outline

A. Principles and Methods of construction estimating
   Define and discuss construction terminology and abbreviations
   1. Types of construction contracts
   2. Construction estimating for bids and other purposes

B. Components and use of construction estimates
   1. Differences between general contractor estimates, subcontractor estimates, and owner-developer estimates
   2. The role of the estimator

C. Explain the role of computers in construction
   1. Dedicated and personal estimating programs
   2. Estimating and cost

D. Pricing methods used in construction estimating
   1. Profit and overhead costs
   2. Pricing for plant and equipment, materials and labor, subcontracted work, and contingencies
   3. Examples of foundations, foundations and framing, swimming pool, and concrete building
   4. Quantities of work

E. Working with measurements, both general and particular
   1. Measurement of site work and general requirements
   2. Construction components - individual measurement
   3. Measurement of the following: cast-in-place concrete, reinforcing steel in cast-in-place concrete, in situ pre-stressed concrete, unit masonry work, structural, structural steel work, cabinet work and millwork, doors, windows, mechanical work, and electrical work
   4. Different approaches to measurement and pricing work

F. Cost accounting practices
   1. Codes for cost accounting
   2. Reporting for cost accounting
   3. Measurement for cost accounting
   4. Cost allocation .

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Homework/Labs	10%
Quizzes	10%
Projects	40%
Final Project	30%

Final Exam	10%

Late Penalties will be assessed on all work turned in late. 5 points per day

Course Requirements

1. Use Estimating software to determine the material costs for a project.
2. Create a construction schedule with projected labor needs for a project.
3. Create estimates for preliminary foundations, framed buildings, swimming pools and concrete buildings.
4. Perform site measurements for both size and elevation to determine cut and fill for a project.

Attendance Policy

1. Missing more than 20% of classes will result in an automatic "F" for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.

Course Policies

1. No food, drinks, or use of tobacco products in class.
2. No foul or harsh language will be tolerated
3. Turn off all Cell Phones during lectures
4. Headphones may be worn only upon Instructor approval
5. Do not bring children to class.
6. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result from expulsion from LIT.
7. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
8. BACK-Ups. It is the student's responsibility to make back-up copies of their work. Do not rely on the server to be their 100% of the time. I cannot help you if you lose your work. Remember that in order for your work to be graded, it must be in your account on the server.
9. Internet Usage
    a. Classroom computers have access to the internet.
    b. Student usage of the internet will be monitored.

c. Proper usage of the internet will be allowed. Used for classroom research or as directed.

d. Any unauthorized use of the internet will not be tolerated.

e. Improper usage of the internet, such as profanity, pornography, gambling, etc… will result in disciplinary action not limited to expulsion from LIT.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week	Topic	Reference
1	Course introduction and policies • Lecture • Lab: Using the Computer	Handouts
2	The Estimating Process • Lecture • Lab: Chapter Exercises	Chapter 1
3/4	Measuring Quantities • Lecture • Lab: Chapter Exercises • Project: As Assigned	Chapter 2
5/6	Site Work and Excavation • Lecture • Lab: Chapter Exercises • Project: As Assigned	Chapter 3
7/8	Measuring Concrete & Masonry Work • Lecture • Lab: Chapter Exercises • Project: As Assigned	Chapter 4 & 5
9/10	Measuring Carpentry and Miscellaneous Items • Lecture • Lab: Chapter Exercises • Project: As Assigned	Chapters 6
11	Pricing Construction Equipment • Lecture	Chapters 7

Week	Topic	Reference
	• Lab: Chapter Exercises	
12	Pricing Excavation and Backfill • Lecture • Lab: As Assigned	Chapters 8
13	Pricing Finish work • Lecture • Lab: As Assigned	Chapters 9
14	Pricing Subcontractors • Lecture • Lab: As Assigned	Chapters 10
15/16	Final Project • Lecture • Project: As Assigned	